Elite control of HIV infection: implications for vaccines

Retrovirology

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Oral presentation

Elite control of HIV infection: implications for vaccines

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from 2006 International Meeting of The Institute of Human Virology
Baltimore, USA. 17–21 November, 2006

Published: 21 December 2006

Retrovirology 2006, **3**(Suppl 1):S16 doi:10.1186/1742-4690-3-S1-S16

Although development of an effective AIDS vaccine to provide sterilizing immunity remains an elusive goal, vaccine protection from disease progression has been achieved in animal models, supporting this approach as a realistic goal for first generation vaccines for humans. The global epidemic would be expected to contract as long as viral load could be durably sustained at levels below 2000 RNA copies/ml, a level at which the probability of transmission and of disease progression are markedly reduced. Such control occurs in a subset of infected persons, but the immune responses in these persons have not been systematically defined. Here we examine HIV-specific cellular and humoral immune function in persons who have achieved such viral control without the need for medications, including those who maintain plasma virus below the level of detection (< 50–75 copies/ml, aviremic controllers, n = 64), persons with persistent low level viremia (75–2000 copies, viremic controllers, n = 60) and persons with chronic uncontrolled infection (n = 30). Results to be presented indicate substantial individual heterogeneity in adaptive immune responses among HIV controllers, and none of the parameters tested predicts the ability to contain virus. These results have important implications for current HIV vaccine development strategies aimed at durable maintenance of low level viremia.